INVENTORY OF UPPER COLUMBIA BASIN NETWORK

FIRE INFORMATION

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Cover page photos from left to right: prescribed fire at John Day Fossil Beds National Monument, wildfire at Craters of the Moon National Monument and Preserve, and prescribed fire at Whitman Mission National Historic Site.

Introduction

In 1999, the National Park Service (NPS) launched the Natural Resource Challenge, a 5-year program designed to strengthen natural resource management in the nation's national parks (National Park Service 1999). The single biggest undertaking of the Challenge was to expand ongoing park inventory and monitoring efforts into an ambitious comprehensive nationwide program. The Service-wide Inventory and Monitoring (I&M) program was introduced to 270 parks identified as having significant natural resources. Under this program, parks have been organized into 32 networks to conduct long-term vital signs monitoring. Each network links parks that share geographic and natural resource characteristics, allowing for improved efficiency and the sharing of staff and resources.

The Upper Columbia Basin Network (UCBN) includes nine national park units with significant natural resources in Idaho, Montana, Oregon and Washington. The parks in the Network include: Big Hole National Battlefield (BIHO) in Montana; City of Rocks National Reserve (CIRO) in Idaho: Craters of the Moon National Monument and Preserve (CRMO) in Idaho; Hagerman Fossil Beds National Monument (HAFO) in Idaho; John Day Fossil Beds National Monument (JODA) in Oregon; Lake Roosevelt National Recreation Area (LARO) in Washington; Minidoka Internment National Monument (MIIN) in Idaho; Nez Perce National Historical Park (NEPE) in Idaho, Montana, Oregon, Washington; and Whitman Mission National Historic Site (WHMI) in Washington.

This report on the availability of fire information in the UCBN addresses a need of the monitoring program to summarize existing information concerning park natural resources and identify the most significant resources and resource threats for each park across the network. The purpose of this project was to locate current and historic fire data associated with the UCBN parks and to provide access to this data to aid in project planning and decision-making.

Fire is a powerful force that has had, and will continue to have, a profound influence on NPS lands. Fire management decisions within the NPS require information on fire behavior and on the effects of fire on park resources (National Park Service 2003). In addition, information on fire severity and frequency are necessary to meet several goals of the NPS I&M program including to better understand the dynamic nature and condition of park ecosystem, to provide reference points for comparisons with other altered environments, and to meet certain legal and congressional mandates related to natural resource protection. Knowing the condition of natural resources in national parks is also fundamental to the Service's ability to manage park resources unimpaired for the enjoyment of future generations (http://science.nature.nps.gov/im/monitor/vsmAdmin.htm).

Methods

The first step in this project was to initiate a scoping process to determine the *Who, What, Where, When,* and *Why* of fire information available. The scoping process included generating a list of important questions for this report to answer. The questions included:

- Who are the contacts for the available Network fire information?

- What type of fire information has been collected and recorded in the past and will be collected in the future?
- Where is the fire information for UCBN parks stored?
- When are the data collected – annually, every five years, etc.?
- Why are the data collected? Is there management objectives associated with the collected information?

Resource managers in the nine UCBN park units were contacted and asked to send any fire information that they had in the park (including fire management plans), provide NPS or other agency contacts for additional fire information, and provide information of other depositories that they knew stored fire information for their park (see Appendix A for contact information). The park contacts identified several outside sources for park fire information including; United States Forest Service (USFS), Bureau of Land Management (BLM), North Cascade National Park, Pacific West Region offices, and several sources at the University of Idaho and Oregon State University libraries. Information was also located on the Internet at many different sites.

After the scoping process was complete, the task of collecting information began. Any data that was stored electronically and available for transfer was obtained via E-mail attachment or download. Hard copy information had to be mailed or picked up in person from the sources.

The final step in this project was to compile the information and summarize what data was found, who has it, what was actually collected, where the data was collected from, when and why the data was collected, and where it can be located. Due to the time frame of this project, some data may not be collected by the conclusion of this report. This data will be identified and a description of where the data is and a contact will be provided.

Results

Time Line of Policy Change

While some NPS units began fire monitoring as early as 1978, most did not. However, after the 1988 fires in Yellowstone NP, there was a strong push for monitoring the effects of fires. This led to the creation of the Fire Monitoring Handbook. On paper, the monitoring program was fully implemented in the Western Region in 1990. In 1996, NPS adopted the Fire Monitoring Handbook which outlined specific monitoring protocols and standards. In 1998, Directors Order 18 directed managers to have a Fire Management Plan and monitor all prescribed and wildland fires. That same year Reference Manual 18 came out further explaining the fire management guidelines of Directors Order 18 (National Park Service 1999). As a result of these past events there should be current Fire Management Plans and monitoring data for all parks that have experienced wildfire and/or have prescribed burning projects. Unfortunately, this is not the case for parks in the UCBN.

Fire data prior to the adoption of the Fire Monitoring Handbook in 1996, is hard to find and non-existent in some cases. For the parks that experienced wildfires in the past, fire report forms were filed that contained basic fire information (see Appendix B). These reports were previously entered into the Shared Applications Computing System (SACS). In 2004, this computer system changed to the National Fire Plan Operations & Reporting System (NFPORS), an interagency

application to report accomplishments for the National Fire Plan. All wildfires are entered into NFPORS. Many of these reports can be found on the National Fire and Aviation Management Web Applications (FAMWEB) site (http://famweb.nwcg.gov/) under US federal wildland fire management data. Data included in these reports are: date of occurrence, date controlled, size of fires, GPS location coordinates, land owner, agency responsible, initial attack forces, and person filing report. Users of this site must keep in mind that the records do not contain all the past fires. This is due to the loss of some old hard copy fire reports or inconsistent entries into the electronic reporting systems. Fire report data from other agencies having fire suppression responsibilities on NPS lands can be found in this data as well. The data have an origin code that correlates to the landowner where the fire started. Fire report data exist for approximately 220 fires in UCBN parks dating back to 1964 at CRMO (Table 1).

Table 1. Fires from 1964-2004 that originated within UCBN park boundaries. Any fires that burned in the parks but originated outside of the park boundaries are not represented. All fires where the BLM had fire jurisdiction are represented on the chart. The Forest Service also has fire suppression jurisdiction on some park lands, but those fires are not included in this chart due to differences in the data file formatting. Note that Minidoka Internment NM is not included.

Year	LARO	WHMI	JODA	HAFO	CRMO	CIRO	BIHO	NEPE
1964					1			
1965								
1966								
1967								
1968								
1969								
1970								
1971					3			
1972								
1973								
1974					1			
1975								
1976								
1977		1						
1978								
1979					1			
1980	1							
1981	2	1						
1982	4	1						
1983	3	1						
1984	6							
1985	6	1	1					
1986	6		3				1	
1987	4	3	6					2
1988	4	1	2				2	
1989	10		1		2			
1990	2				2			
1991	2							
1992	52				1			
1993	5				2			
1994	7						1	
1995	2				2			
1996	3			1				
1997	3	2	1	1			2	
1998	5	2				1	1	
1999	4		2			1		
2000	4							
2001	8		1					
2002	5		4					
2003	5							
2004	20		1					
Total	173	13	22	2	15	2	7	2

Prescribed Fire

Four parks in the network BIHO, JODA, LARO, and WHMI have active prescribed burn programs. Copies of several burn plans were received at the time of this report from these parks (Table 2). Several of the plans from LARO are silviculture plans that involved both slashing and burning.

Table 2. Park units with available burn plans including the year and acreage of the area burned.

Park	Year	Project	Acres
JODA	1999	Windy Point Rx burn	1740
JODA	2001	Picture Gorge Rx burn	845
JODA	2002	Sand Mtn burn	1780
JODA	2002	Middle Mtn burn	895
JODA	2004	Rock Creek Burn	1100
WHMI	2004	WHMI Rx plan	98
LARO	2003	Bradbury Beach slash&burn	24
LARO	2003	Water Tank slash/burn	43
LARO	2003	Porcupine/Laughbon slash/burn	35
LARO	2003	Marcus Island slash/burn	49
LARO	2004	Rx Plan Gifford unit	67
BIHO	------	At least 4 burn plans not received	---

The Pacific West Region fire ecologist based at North Cascade National Park oversees the monitoring of fire effects plots at JODA, LARO, and WHMI using the monitoring protocol and data collection forms from the Fire Monitoring Handbook (http://www.nps.gov/fire/fire/fir_eco_firemonitoring.html). The plot data is stored in a Microsoft ACCESS database called Fire Ecology Assessment Tool (FEAT), and will soon be available on an internal, read-only NPS FTP site (see Table 5). The fire ecologist responsible for compiling the fire data from the fire effects plots in these parks at the time of this report is Karen Kopper (Appendix A).

Spatial Data

Perimeters of fires from 1981-2003 were acquired in spatial format from Region 4 of the USFS. The polygons were assembled from digitized maps, GPS data, and photos. After analyzing the data, it was apparent that fire data inside the boundaries of network parks was not available until 1996, the same year the NPS Fire Monitoring Handbook was adopted. Figure 1 shows the fires that have been mapped in and around the network parks. Not all the fires that have occurred are represented in this data due to bad record keeping of past fire perimeters. Compilation of the available data from within park service units from 1996-2003 is shown in Table 3. For any updates to this data contact David Prevedel, Information Systems Specialist (Appendix A).

Figure 1. Extent of fires in the Upper Columbia Basin Network from 1996-2003 in relation to the park boundaries.

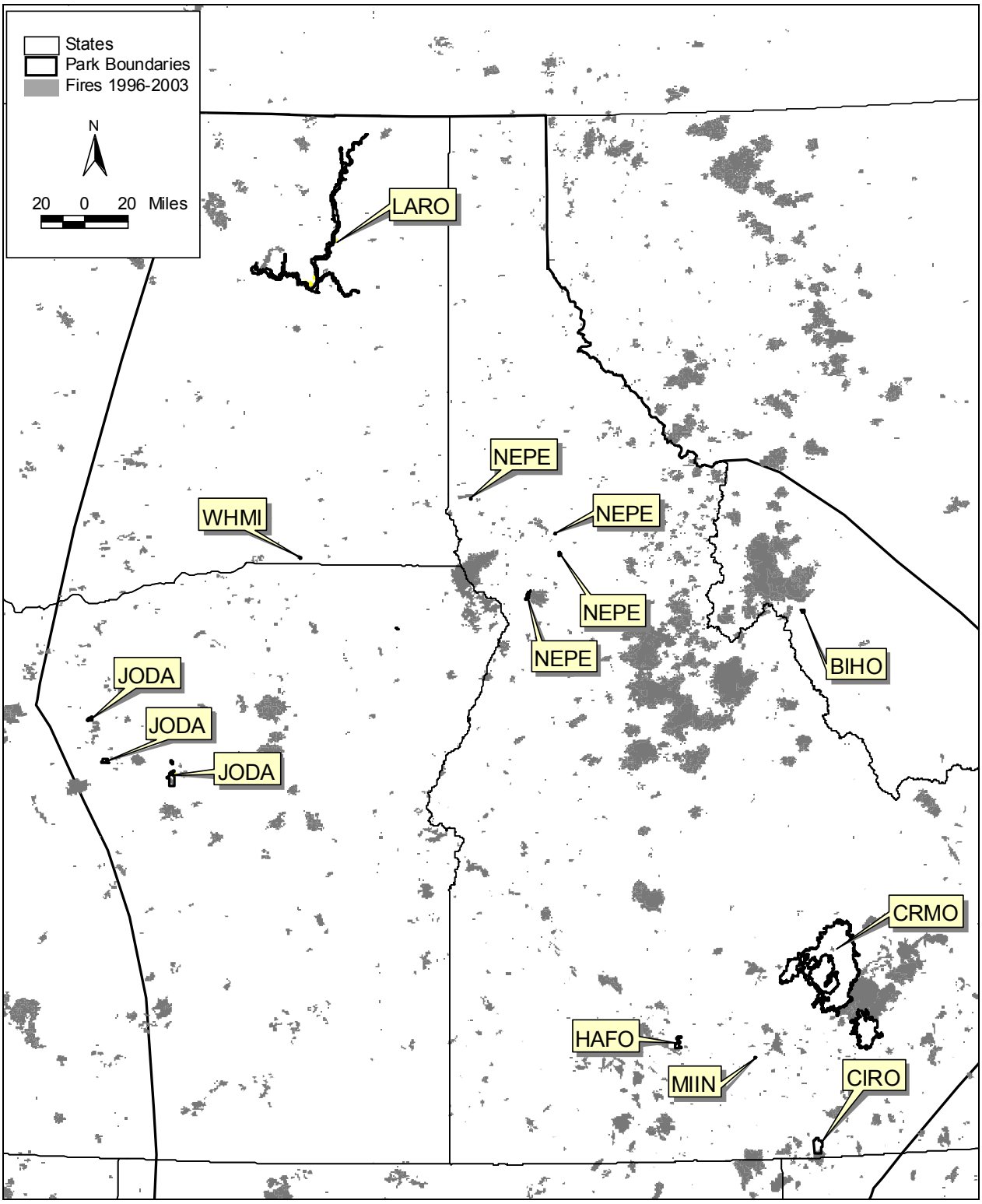

Table 3. Compilation of the fires in the Upper Columbia Basin Network from 1996-2003 in relation to the park boundaries.

Park	Year	# Fires	Acres burned within 5 miles	Acres burned inside park
CRMO	1996	1	6527	30
HAFO	1996	1	171	0
JODA	1996	2	171	0
LARO	1996	2	114	21
NEPE	1996	2	457	0
WHMI	1996	1	143	0
CRMO	1998	4	130	3
HAFO	1998	1	4	0
MIIN	1998	1	124	0
CIRO	1999	2	865	52
CRMO	1999	7	16344	292
HAFO	1999	1	4460	0
JODA	1999	1	281	232
MIIN	1999	1	109	0
BIHO	2000	1	45074	0
CIRO	2000	4	2627	208
CRMO	2000	9	10245	349
HAFO	2000	2	73	0
JODA	2000	1	849	0
LARO	2000	1	1149	0
MIIN	2000	1	8	0
NEPE	2000	5	3243	0
HAFO	2001	1	132	0
JODA	2001	6	1144	0
LARO	2001	5	522	87
BIHO	2002	1	403	0
CRMO	2002	2	195	0
JODA	2002	1	309	309
BIHO	2003	1	812	0
CRMO	2003	1	253	0
LARO	2003	6	2644	212
NEPE	2003	2	1088	0

The Interior Columbia Basin Ecosystem Management Project (ICBEMP) compiled fire origin data including start location, acres burned, and fire causes from 1986 to 1992. Based on this data, 135 fires occurred in UCBN parks burning approximately 6660 acres (Table 4). When comparing this table to the other tables with similar data in this document, it is clear that there are some discrepancies in the number of fires and acres burned per year. These differences even occur in recent years. This would indicate that a better method of recording fire occurrence and acres burned needs to be created so the fire history data is more accurate in the future.

Table 4. Fires originating in UCBN parks, acres burned and fire causes from 1986 to 1992, based on the Interior Columbia Basin Ecosystem Management Project.

Park	Date	Final Size	Fire Cause
LARO	7/1/1986	1.00	Incendiary
CRMO	7/2/1986	15.00	Lightning
NEPE	7/5/1986	3.00	Campfire
LARO	7/6/1986	0.50	Incendiary
LARO	7/9/1986	0.50	Smoking
LARO	7/9/1986	0.30	Debris burning
LARO	7/20/1986	0.20	Smoking
LARO	7/20/1986	0.30	Debris burning
LARO	7/27/1986	0.10	Lightning
LARO	7/27/1986	0.10	Miscellaneous
JODA	8/2/1986	37.00	Lightning
NEPE	8/10/1986	2.20	Incendiary
LARO	8/12/1986	0.00	Lightning
NEPE	8/25/1986	0.10	Smoking
NEPE	8/26/1986	0.10	Miscellaneous
LARO	9/7/1986	1.00	Logging
LARO	9/27/1986	0.50	Equipment use
LARO	3/31/1987	0.30	Debris burning
LARO	4/9/1987	15.00	Incendiary
LARO	4/16/1987	1.00	Equipment use
LARO	4/27/1987	0.10	Debris burning
LARO	5/14/1987	7.00	Equipment use
LARO	6/10/1987	0.10	Debris burning
LARO	6/24/1987	0.10	Debris burning
LARO	7/3/1987	0.50	Lightning
LARO	7/5/1987	0.50	Incendiary
LARO	7/25/1987	0.10	Lightning
CRMO	7/26/1987	10.00	Children
LARO	7/26/1987	7.00	Railroads
LARO	7/28/1987	0.20	Lightning
LARO	7/29/1987	1.00	Lightning
LARO	7/30/1987	0.10	Lightning
LARO	8/3/1987	0.10	Lightning
LARO	8/15/1987	0.10	Lightning
CRMO	8/25/1987	1.00	Lightning

Park	Date	Final Size	Fire Cause
LARO	7/2/1990	0.10	Miscellaneous
LARO	7/12/1990	15.00	Miscellaneous
CRMO	7/13/1990	1.00	Lightning
LARO	7/21/1990	0.10	Miscellaneous
JODA	8/14/1990	30.00	Lightning
JODA	8/14/1990	30.00	Lightning
JODA	8/17/1990	0.20	Lightning
LARO	9/1/1990	0.10	Debris burning
LARO	9/5/1990	0.00	Miscellaneous
LARO	9/15/1990	0.20	Miscellaneous
LARO	5/1/1991	30.00	Equipment use
LARO	7/1/1991	0.00	Miscellaneous
LARO	7/4/1991	0.10	Incendiary
CIRO	7/14/1991	0.10	Lightning
CRMO	7/24/1991	13.00	Lightning
LARO	7/24/1991	0.10	Lightning
CRMO	8/19/1991	10.00	Lightning
LARO	9/4/1991	0.30	Miscellaneous
LARO	9/8/1991	0.00	Logging
LARO	10/1/1991	0.20	Logging
NEPE	10/7/1991	0.10	Miscellaneous
LARO	4/19/1992	0.10	Miscellaneous
LARO	4/19/1992	0.10	Debris burning
LARO	5/10/1992	0.50	Logging
LARO	5/20/1992	2.10	Equipment use
LARO	5/23/1992	0.10	Debris burning
LARO	5/24/1992	0.10	Debris burning
LARO	5/24/1992	0.10	Debris burning
LARO	5/24/1992	0.10	Debris burning
LARO	5/27/1992	0.30	Smoking
LARO	5/30/1992	0.10	Debris burning
LARO	6/6/1992	0.10	Debris burning
LARO	6/11/1992	0.10	Equipment use
LARO	6/12/1992	0.10	Debris burning
LARO	6/18/1992	0.10	Debris burning

JODA	9/25/1987	400.00	Miscellaneous
JODA	9/25/1987	400.00	Equipment Use
LARO	4/29/1988	0.10	Miscellaneous
LARO	5/21/1988	3.50	Logging
LARO	5/22/1988	6.00	Logging
LARO	7/3/1988	0.10	Miscellaneous
LARO	7/27/1988	20.00	Miscellaneous
CIRO	8/5/1988	400.00	Lightning
LARO	8/22/1988	1.00	Debris burning
LARO	10/23/1988	15.00	Equipment use
CRMO	6/9/1989	4.00	Lightning
LARO	6/25/1989	0.10	Lightning
LARO	6/25/1989	0.10	Lightning
LARO	7/5/1989	2.00	Miscellaneous
LARO	7/5/1989	0.70	Miscellaneous
LARO	7/15/1989	0.10	Lightning
LARO	7/20/1989	0.10	Miscellaneous
LARO	7/22/1989	0.10	Debris burning
CRMO	7/30/1989	1880.00	Lightning
CRMO	7/31/1989	3.00	Lightning
CRMO	7/31/1989	2.00	Lightning
CRMO	7/31/1989	1.00	Lightning
CRMO	8/2/1989	65.00	Lightning
LARO	8/12/1989	0.20	Lightning
LARO	8/19/1989	0.00	Lightning
LARO	8/19/1989	0.10	Lightning
LARO	8/19/1989	0.10	Lightning
LARO	9/4/1989	50.00	Campfire
LARO	9/4/1989	1.00	Incendiary
JODA	10/16/1989	0.00	Miscellaneous
LARO	3/27/1990	5.00	Incendiary
LARO	3/31/1990	2.00	Debris burning
LARO	5/6/1990	2.00	Logging

LARO	6/19/1992	0.00	Logging
LARO	6/20/1992	0.00	Logging
LARO	6/21/1992	250.00	Lightning
LARO	6/21/1992	0.10	Debris burning
JODA	6/23/1992	0.25	Miscellaneous
LARO	6/24/1992	0.00	Debris burning
LARO	6/24/1992	0.50	Logging
LARO	6/25/1992	0.10	Railroads
LARO	7/3/1992	0.10	Debris burning
LARO	7/4/1992	0.10	Lightning
LARO	7/7/1992	0.00	Miscellaneous
LARO	7/17/1992	0.10	Debris burning
LARO	7/18/1992	0.10	Debris burning
LARO	7/18/1992	0.10	Debris burning
LARO	7/20/1992	0.00	Miscellaneous
LARO	7/24/1992	0.10	Debris burning
LARO	7/31/1992	0.10	Debris burning
LARO	7/31/1992	0.10	Debris burning
LARO	8/1/1992	0.10	Debris burning
LARO	8/1/1992	0.10	Debris burning
CRMO	8/3/1992	1900.00	Lightning
CRMO	8/3/1992	1000.00	Lightning
LARO	8/4/1992	2.50	Miscellaneous
LARO	8/15/1992	0.10	Debris burning
LARO	8/16/1992	0.10	Debris burning
LARO	8/16/1992	0.10	Debris burning
LARO	8/21/1992	0.10	Debris burning
LARO	9/3/1992	0.10	Debris burning
LARO	9/4/1992	0.10	Miscellaneous
LARO	9/7/1992	0.10	Debris burning
LARO	9/12/1992	0.10	Debris burning
LARO	9/23/1992	0.60	Miscellaneous

Online Resources

Several online resources were found that could provide useful data to park resource managers, fire specialists, and researchers. Table 5 lists the internet address of each site containing Network fire information and provides a brief summary of the information found at each address.

Table 5. Summary of online resources for Upper Columbia Basin Network fire information.

Site Name	Site Address	Site Description
Upper Columbia Basin Network Office	http://www1.nature.nps.gov/im/units/ucbn/	The UCBN library of publications page contains many of the fire management plans from the network parks.
National Park Service Fire and Aviation Management	http://www.nps.gov/fire/fire/fir_eco_firemonitoring.html	The Fire Management Program Center provides national leadership, direction, coordination, and support for NPS fire, aviation, and incident management.
Fire Effects Information System	http://www.fs.fed.us/database/feis/	Created by the Rocky Mountain research station, this site summarizes and synthesizes research about wildlife and plant species in the United States, including their biology, ecology, and relationship to fire.
SAGEMAP	http://sagemap.wr.usgs.gov/sage_grouse.htm	Snake River Field Station of the USGS Forest and Rangeland Ecosystem Science Center identifies and collects spatial data layers needed for research and management of sage grouse and shrub-steppe systems including fire related data.
National Fire and Aviation Management Web Applications	Http://famweb.nwcg.gov/weatherfired/ washington.htm#NPS (LARO, WHMI) idaho.htm#NPS (CIRO, CRMO, HAFO, NEPE) montana.htm#NPS (BIHO)	The intent of this site is to provide US Federal wildland fire managers with access to historical data.
Interior Columbia Basin Ecosystem Management Project	http://www.icbemp.gov/spatial/disturbance/	The Interior Columbia Basin Ecosystem Management Project was initiated by the UDA Forest Service and the USDI Bureau of Land Management. Disturbance related information such as wildfire

		locations, historical and current fire regimes, and rural population wildland interface fire risk areas.
National Park Service- U.S. Geological Survey Burn Severity Mapping Project	http://edc2.usgs.gov/fsp/severity/fire_main.asp	Satellite imagery and derivative products centered on major fires that impact national parks and other federal lands. The Burn Severity Mapping Project addresses the need to quantify fire effects over large, often-remote regions and long time intervals beginning with fire-year 2000, although earlier burns have been examined in some areas.
North Cascades National Park Monitoring Plots (FEAT)	FTP://ftp.den.nps.gov/incoming/NOCA/	Internal NPS FTP site where the Fire Effects Monitoring Plot data will be stored once completed.
Fire Regime Condition Class (FRCC)	http://www.frcc.gov/	FRCC is an interagency, standardized tool for determining the degree of departure from reference condition vegetation, fuels and disturbance regimes.

Fire Monitoring Today (2005)

Current monitoring standards in the park units are outlined in the Fire Monitoring Handbook. The Fire Monitoring Handbook was created in 1988 but was not adopted by the National Park Service until 1996. The handbook provides a system to document burning conditions and fire behavior, insure fires remain within certain conditions, verify completion of burn objectives, and follow long-term trends. This information can help managers in burn prescription refinement when objectives are not met, identify long-term undesirable trends, and to identify research needs (http://www.nps.gov/fire/fire/fir_eco_firemonitoring.html). The guidelines set forth in the Fire Monitoring Handbook are now the minimum standards for monitoring. The goals of the National Fire Monitoring Program are to record basic information for all fires, document immediate post-fire effects of prescribed burns, share information among land managers, follow trends in plant communities where fire research has been conducted, and identify future research needs. The program recognizes four basic levels of monitoring variables; environmental, fire observations, monitoring variables, and long term change (Table 6). The program also recommends different standards of monitoring for three different fire management strategies. Monitoring levels 1 and 2 are recommended for suppression, wildland fire use, and prescribed fire while all 4 levels are recommended for prescribed fire.

Table 6. The 4 fire monitoring levels identified by the National Park Service for the fire monitoring program.

Level	Title	Description	Variables
Level 1	Environmental (Planning)	Fire Planning data provides the background for decision making.	Weather, Fire danger rating, Resource availability, Values at risk, Baseline inputs for fire decision making technologies, Repeated inventories
Level 2	Fire Observations	Reconnaissance monitoring: basic overview of the fire. Fire condition monitoring: Monitoring over the time of the fire.	Cause, location, size, fuels, activity, spread potential, weather, smoke, and safety issues. Monitoring period, topographical variables, behavior, Smoke, fuels, and Weather.
Level 3	Monitoring Variables	Monitoring variables in three different cover types.	Grass land transects, Brush plots, Forest Plots
Level 4	Long Term Change	Continued monitoring of all level 3 variables.	

Summary of Fire Monitoring in Network Parks

City of Rocks National Reserve (CIRO)
The monitoring information available for CIRO is from the CIRO 1994 Fire Management Plan. When the updated version (currently in review) is complete and available it will have the current monitoring standards for CIRO. According to the 1994 plan, the Pacific Northwest Region would be notified as soon as possible of all wildfire activity. A Fire Report DI-1202 would be completed for all wildland fires by the incident commander prior to release from the fire. Currently there is a fire history project being done in the park. This project is scheduled to be completed in the fall of 2005. The updated Fire management plan should address the new standards of fire monitoring but, at this time the fire monitoring is not being done to current policy.

Craters of the Moon National Monument and Preserve (CRMO)
The fire monitoring program for CRMO follows the guidance of the Fire Monitoring Handbook. The focus of this monitoring program is to study big sagebrush plant associations and cheatgrass response according to the 2000 CRMO Fire Management Plan. The reason for monitoring is to

verify current fire ecology research throughout the monument, and to monitor the invasion of exotic species. The level of monitoring will be determined by current and predicted fire behavior. Large active fires will require qualified fire monitoring technicians, recording fire weather readings onsite, estimating fire behavior parameters, noting fire effects, determining fuel moisture levels, and documenting fuel type fire behavior with photographs. The 2000 Fire Management Plan has been collected by the UCBN along with a table of fires from 1984-2003 (see Appendix C) and data from two vegetation plot surveys. To accurately compare change of vegetation from pre to post fire it would be good to have documented the vegetation prior to burning. Without this data it is hard to make the comparison and measure the cheatgrass response as stated in the Fire Management Plan objectives.

Hagerman Fossil Beds National Monument (HAFO) and *Minidoka Internment National Monument* (MIIN)
These parks are managed by the Superintendent of HAFO and so operate under the same fire management plan. The current 2001 HAFO plan does not show this, however the next revision will incorporate MIIN. The focus of this monitoring program is to study big sagebrush plant associations and cheatgrass response when prescribed fire is used in the Monument. This objective is very similar to CRMO's with the same issue that there is a lack of pre-burn vegetation data for comparison. The monitoring design is as described in the National Fire Monitoring Handbook. Monitoring will be associated with prescribed fire projects in the Monument and the cost of these projects will include the cost of monitoring within the project area and up to three years after the project is completed. Data will be entered, checked for errors, and managed by the fire effects monitoring staff at North Cascades National Park. At the time of this report North Cascades was not aware of this responsibility. Original copies of all data will be kept in the office of CIRO. CIRO has not received any fire data from HAFO at the time of this report. Copies of all data will be filed in North Cascades fire management office and will be made available to HAFO staff by December first of that year.

John Day Fossil Beds National Monument (JODA)
Prescribed fire will be used for hazard fuel reduction, maintenance of historic landscapes, and ecosystem management. The intent of monitoring prescribed fires at the monument is to provide information for quantifying and predicting fire behavior and its ecological effects on the monument resources while building a historical record. Monitoring measures the parameters common to all fires: fuels, topography, weather and fire behavior. In addition, ecological changes over time, such as species composition and structural change, will be monitored for several years after a fire. JODA will use the fire monitoring protocols developed by the Fire Monitoring Handbook and adapted for use in the monument. A fire monitor will be assigned to collect all information and complete the necessary forms prior to, during, and after the burn. Records will be archived in the monument's fire records for future use and reference.
The UCBN has collected four burn plans from 1999 to 2003 as well as the current (2003) Fire Management Plan.

Lake Roosevelt National Recreation Area (LARO)
Monitoring will be a part of all prescribed burns conducted in LARO. Monitoring will help to define the effectiveness of the fire management program by assessing the vegetative effects of fire using the monitoring protocols outlined by the Fire Monitoring Handbook. The fire

ecologist for the North Cascades National Park Service Complex is responsible for pilot sampling, monitoring crew supervision, data entry, management, and analysis. This person is also responsible for annual reports and data analysis. The North Cascades Fire Effects Monitoring Crew will carry out data collection and data entry with assistance from Lake Roosevelt staff when possible. The North Cascades Fire Ecologist and the Regional Fire Effects Monitoring Coordinator are responsible for management plan revision and annual monitoring program review. The UCBN has collected the most recent Fire Management Plan, monitoring report for the Evans Rx unit, Rx plan for the Gifford Unit, 4 slash and burn plans, and the slope analysis of potential burn areas.

Nez Perce National Historical Park (NEPE) and *Big Hole National Battlefield* (BIHO)
Park personnel are responsible for keeping records of fires and completing an annual report on fires and fire effects in the park. All fires will be reported using a DI-1202 and entered into the SACS, now National Fire Plan Operational Reporting System (NFPORS), within 10 days. The fire monitoring plan is not present in the 2000 version of the Fire Management Plan so there is not much information on monitoring in the parks. Mitch Burgard, at the time of this report, is writing the Rx burn plans for BIHO (see Appendix A). The old plans prior to the year 2000 were done by Diane Hutton (see Appendix A). Copies of the Rx plans are being collected by the UCBN.

Whitman Mission National Historic Site (WHMI)
Fire monitoring will be done in accordance to the Fire Monitoring Handbook. Prescribed fire plans will be completed prior to burning and filed at the park. Following the burn, the Chief of Interpretation & Resource Management will complete a fire monitoring report that summarizes weather and fire behavior observations in relation to ignition operations and any initial observations of first order fire effects. That person will also prepare an Individual Fire Report, DI-1202, and update the National Fire Plan Operational Reporting System within ten days after the fire. The park staff will maintain a project file that includes the burn unit plan, spot weather forecasts, and all required reports. Long-term evaluation of how successful the burn was in achieving burn plan goals and objectives will be conducted by park staff and Fire Effects Monitoring staff from North Cascades National Park. Twenty DI-1202 report forms have been collected for both wildfire and prescribed fire at WHMI between 1982-2004.

Conclusion

Since 1996, there have been roughly 100,670 acres burned naturally in and around the park of the UCBN (USDA Forest Service 2003). This figure is not inclusive of the acres burned during prescribed fire events which are extremely variable from year to year. When comparing available fire data however, it is clear there are some discrepancies in both the number of fires and acres burned per year. This would indicate that a better method of recording fire occurrence and acres burned needs to be created so the fire history data is more accurate in the future.

Sound fire management plans, coupled with the guidance from the Fire Monitoring Handbook, will give rise to monitoring information both accurate and available for land managers and researchers. The bottom line is, without monitoring data collected over time, land managers

have no hard evidence that what they are doing is meeting the management objectives. Currently there is a significant lack of pre-burn data. Post-fire data has been collected in some areas, but this only tells what has happened after fire and is really only telling part of the story. To facilitate monitoring managers must take a more active role in instigating the monitoring effort. In many cases monitors come from outside the park level. These monitors can only measure what they know about. Some pre-planning on the park manager's part to inform and schedule with the monitors could resolve some of the lack of monitoring. It is also fair to say that once monitoring has occurred the data should be processed and returned to the manager in a timely manner to measure success and use for any future projects.

It is important that managers know where to access information that has been collected from fire events in their parks and that this information is accurate. Today, land managers are becoming increasingly accountable for their decisions. Accurate, timely, and uniformly-gathered data is crucial for obtaining trend information on the health of the land and the effects of fire on park resources as well as facilitating information exchange among parks and providing documentation and databases useful for refinement of the park fire management programs (National Park Service 2003, National Wildfire Coordinating Group 2005).

Literature Cited

National Wildfire Coordinating Group. 2005. National Fire and Aviation Management Web Applications available online at http://www.nps.gov/fire/fire/fir_eco_firemonitoring.html

National Park Service. 1999. Wildland Fire Management Guideline, RM-18. USDI, National Park Service.

USDA Forest Service. 2003. 20 Year Fire History, Region 4. USDA Forest Service, Ogden, UT.

National Park Service. 2003. Fire Monitoring Handbook. Boise (ID): Fire Management Program Center, National Interagency Fire Center. 274p.

Appendix A. Contact information for Network fire information

Name	Title	Park	Phone #	E-mail address
Apel, John	Resource Program Manager	CRMO	208-527-3257 ext 501	John_Apel@nps.gov
Benson, Nate	Fire Ecologist	NIFC Boise ID	208-387-5219	Nate_Benson@nps.gov
BLM	Upper Snake River District, Shoshone Field Office	BLM	208-886-2206	
Burgard, Mitch	AFMO Glacier NP	BIHO	406-888-7811	Mitch_Burgard@nps.gov
Divoky, Dennis	Glacier Fire Ecologist	BIHO	406-888-5801	Dennis_Divoky@nps.gov
Fisher, Tim	Park Ranger	BIHO	406-689-3155	Timothy_Fisher@nps.gov
Garrett, Lisa	Upper Columbia Basin Network Coordinator		208-885-3684	Lisa_Garrett@nps.gov
Gruchy, Fran	Chief of Operations,	HAFO	208-837-4793 ext. 5233	Fran_Gruchy@nps.gov
Hutton, Diane	FMO Beaverhead/Deerlodge NF	BIHO	406-689-3243	
Hyde, Ken	Resource Manager	JODA	541-987-2333 ext. 218	Ken_Hyde@nps.gov
Keifer, Marybeth	Fire Ecologist (Monitoring) Pacific West Region		510-817-1504	MaryBeth_Keifer@nps.gov
Kopper, Karen	North Cascades National Park, Regional Fire Ecologist	JODA, LARO, WHMI	360-873-4500 ext.75	Karen_Kopper@nps.gov
Lyon, Jason	Cultural/Natural Resource Specialist	NEPE	208-843-2261 ext 117	Jason_Lyon@nps.gov
Monsanto, Phil	Fuels Management Specialist	LARO	509-738-6198	Phil_Monsanto@nps.gov
Paintner, Kara	Fire ecologist/Natural Resource liaison, Natural resource		970-267-2121	Kara_paintner@nps.gov

	program center, Fort Collins			
Prevedel, David	Information systems Specialist, R 4 RO, USDA Forest Service		801-625-5660	dprevedel@fs.fed.us
Smedely, Richard	Pacific West Region Fire Planner		360-696-7545	Richard_Smedley@nps.gov
Svancara, Leona	Upper Columbia Basin Network Spatial Ecologist/data manager		208-885-3774	Leona_Svancara@nps.gov
Trick, Roger	Chief interpreter/Resource Manager	WHMI	509-522-6361	Roger_Trick@nps.gov
Vincent, Jodi	Resource Manager	CIRO	208-824-5757	Jodi_Vincent@nps.gov
Weaver, Jerald	Chief of Compliance and Natural Resource Management	LARO	509-633-9441	Jerald_Weaver@nps.gov
Wills, Robin	Region Fire Ecologist CA		402-472-5047	Robin_Wills@nps.gov
Wolken, Paige	Vegetation Ecologist	CRMO	208-527-3257 ext.505	Paige_Wolken@nps.gov
Yohn, Bill	Pacific West Region Fire		510-817-1555	

Appendix B. A copy of the DI 1202 fire report form. This form shows all the fields required for an individual fire report.

NATIONAL PARK SERVICE EDITED VERSION (9-29-2003)
UNITED STATES DEPARTMENT OF THE INTERIOR
DI-1202, INDIVIDUAL FIRE REPORT

1. STATUS CODE __ 2. REPORTING AGENCY __ 3c. YEAR __ __ __ __ 3d. FIRE NUMBER __ __ __ __

4. FIRE TYPE __ PROTECTION TYPE __ 5. GENERAL CAUSE __ SPECIFIC CAUSE __ __ 6. PEOPLE __

8. STATISTICAL DATA

8a. STATE	8b. OWNER	8c. VEGETATION	8d. ACRES BURNED
__ __	__	__	__ __ __ __ __ __ __.__
__ __	__	__	__ __ __ __ __ __ __.__
__ __	__	__	__ __ __ __ __ __ __.__
__ __	__	__	__ __ __ __ __ __ __.__
__ __	__	__	__ __ __ __ __ __ __.__
__ __	__	__	__ __ __ __ __ __ __.__
__ __	__	__	__ __ __ __ __ __ __.__

9. AGENCY DATA

9a. FIRE NAME __ __ __ __ __ __ __ __ __ __ __ __

9b. AREA NAME __ __ __ __

9f. OWNER ____

9g. FY. YR. ____

9h. FISCAL DATA __ __ __ __ __ __ __ __ __ __ __ __

9j. PROBLEM CLASS ____

9k. COORDINATE TYPE (L/L, UTM): __ __ __

L/L AS DD; DD:MM.MMM; DD:MM:SS.S

Map Datum: LATITUDE: LONGITUDE:

__ __ __ __ __ __ __.__ __ __ __ __ __ __.__ __ __ __

UTM Z ____ E __ __ __ __ __ __ N __ __ __ __ __ __ __

10. SUPPRESSION DATA

	DATE	TIME	TYPE	AMOUNT	ACRES
10a. DISCOVERY / START	__ __ __ __	__ __ __ __	__		__ __ __ __ __ __ __. __
10b. INITIAL ATTACK	__ __ __ __	__ __ __ __	1 2 3 4 __ __ __ __	1 2 3 4 __ __ __ __	__ __ __ __ __ __ __. __
10c. CONTROL/COMPLETE	__ __ __ __	__ __ __ __			__ __ __ __ __ __ __. __
10d. DECLARED OUT	__ __ __ __				

11. SITE DATA

11a. TOPOGRAPHY ____

11b. ASPECT ____

11c. SLOPE ____

11d. ELEVATION __

11e. STATION __ __ __ __ __ __

11f. MSGC __ __ __ __

11h. BURNING INDEX ____ ____ ____

11i. ADJ CLASS ____

12. PREVENTION DATA

12k. DAY OF WEEK ____ 12L. WAS FIRE INVESTIGATED (Y / N) ____ 12m. FIRE CAUSE SUSPECT, KNOWN OR ____

12n. SUSPECT = RESIDENT. TRANSIENT OR UNKNOWN (R / T / U) ____ UNKNOWN (K / U)

NOTE: If you use 2 through 9 for "General Cause" and 30 for "Specific Cause" in Block #5, please explain the cause in general terms in the "Remarks" section.

13. PRESCRIBED FIRE DATA

13c.Plot Obj: __ __

13d.Fire Typ: __ __

13f.Fuel Model: __ __

13l.Project Number: __ __ __ __

13m.PNF Complexity

Escape :

Values :

Fuels/Behavior :

Duration :

Air Quality :

13n.

Size Classes	Pre-burn Tons/acre	Percent Consump	Post-burn Tons/acre
Shrub/Herb	__.	__ %	__.
Zero - 1.0	__.	__ %	__.
1.1 - 3.0	__.	__ %	__.
3.1 - 9.0	__.	__ %	__.
Over 9 Inches	__.	__ %	__.
Litt/Duff Inch	__ . __	__ __ __ %	__ __ . __

(Total Emissions Emitted in Tons)

PM10 : __

PM2.5 : __

13e. Cost/Acre: __ __

20. FIRE ECOLOGY

	20a. Fire Regime Group	20b. Pre-Fire Condition Class	20c. Post-Fire Condition Class	20d. Acres	
	_____	_____	_____	_ _ _ _ _ . _	
	_____	_____	_____	_ _ _ _ _ . _	
	_____	_____	_____	_ _ _ _ _ . _	
	_____	_____	_____	_ _ _ _ _ . _	
	_____	_____	_____	_ _ _ _ _ . _	

21a. Is this a Wildland Urban Interface (WUI) Fire? Y/N __
22a. Total number of Homes/Significant Structures Destroyed __ __ __
23a. Gross Fire Suppression Cost: _ _ _ _ _ _ _ _ _ _ _
24a. FIRECODE: __ __ __ __

Was there an Escape? Y/N: __
(Type 48 or 49 Rx fire only)

Attach a topography map of the fire.

Remarks:

Submitted by (Signature)		Approved by (Signature)	
Title	Date	Title	Date

Appendix C. Twenty year history of Craters of the Moon National Monument fire acreages (John Apel, Resource Program Manager CRMO).

Year of occurrence, number of fires, and acreage burned – 20 years of data

	# of Fires	Total Acreage
2003	0	0
2002	1	.1
2001	2	1.8
2000	2	700
1999	1	.5
1998	1	.1
1997	0	0
1996	0	0
1995	2	54
1994	0	0
Ten Year Subtotal	9	756.5
1993	1	3
1992	1	1,900
1991	0	0
1990	2	.4
1989	2	7
1988	0	0
1987	0	0
1986	0	0
1985	1	75
1984	0	0
Ten Year Subtotal	7	1,985.4
Twenty Year Total	16	2,741.9

Appendix D. Available data files of fire information for Network parks

File Name	File Description
2004_1202inst.doc	Changes in DI-1202 Fire Occurrence Report for 2004
DI-1202rev04.xls	DI 1202 fire report document
REVISED 1202 letter. doc	Further instruction on DI 1202 fire report
DI-1202 Instructions. pdf	Instruction forms for the DI 1202 fire report
BLM_DraftEIS_SID. pdf	Draft EIS for Upper Snake River BLM
2004 WHMI prescribed Fire Plan.doc	WHMI Prescribed Fire Plan 2004
2004 WHMI Fire Management Plan2.doc	2000 WHMI Fire management plan
2004 Fire Plan Appendices.doc	2000 WHMI fire management plan appendices
2004 Supplemental Fire Plan Appendices.doc	Supplements to the 2000 WHMI fire management plan
HAFO_FireManagementPlan.doc	2001 HAFO fire management plan
Mgmtplan_template.pdf	Fire Management plan outline
CRMO_firemanagementPlan.doc	CRMO fire management plan
CIRO_Fire_Mgt_Plan_1994dr…	CIRO 1994 fire management plan
LARO_BODY.doc	LARO 2002 Fire management plan
APP_A-D.doc	LARO fire management plan appendices
Appendix E.doc	LARO fire management plan appendices
APP_F-I.doc	LARO fire management plan appendices
APP_J-O.doc	LARO fire management plan appendices
APP_P.doc	LARO fire management plan appendices
APP_Q-T.doc	LARO fire management

	plan appendices
JODA FMP – Main Document.doc	2003 Fire management plan
BLMsSand Mountain Burn.doc	JODA Sand Mountain Burn plan
Pictgor010.doc	JODA Picture Gorge Burn Plan
Middle08.doc	JODA Middle Mountain Burn Plan
Rock creek burn plan.doc	JODA Rock Creek Burn Plan
Fir_wil_rm18_ch04.pdf	Reference Manual 18 (Fire management plans)
FireMonitoringHandbook2003	Fire Monitoring Handbook
Burn Severity Folder	Folder that contains files for CIRO, CRMO, and JODA. These files have images of fires and shapes of the fire boundaries.
ICBEMP Folder	Folder contains several files collected from the ICBEMP project. The files are fire locations and a fire Regime map of the interior Columbia basin.
Evans Monitoring Report.doc	Monitoring report For 30 acre burn unit
Changed Gifford_CC.doc	LARO Rx plan for the Gifford unit
Silv.Rx Bradbury Beach.doc	LARO slash and burn plan
Silv.Rx WaterTankPorcupine.doc	LARO slash and burn plan
Silv.Rx Porcupine.doc	LARO slash and burn plan
Silv.Rx For Marcus.doc	LARO slash and burn plan